

IN THE CLAIMS:

The text of all pending claims, (including withdrawn claims) is set forth below. Cancelled and not entered claims are indicated with claim number and status only. The claims as listed below show added text with underlining and deleted text with ~~strikethrough~~. When strikethrough cannot easily be perceived, or when five or fewer characters are deleted, [[double brackets]] are used to show the deletion. The status of each claim is indicated with one of (original), (currently amended), (cancelled), (withdrawn), (new), (previously presented), or (not entered). Please AMEND claims 1, 3, 7, and 12, and ADD new claims 16 and 17 in accordance with the following:

1. (currently amended) A solid image-pickup device, comprising:
a lens array formed by arranging a plurality of resin lenses in a manner to form a matrix;
an undercoat layer for fixing said ~~micro~~-lens array and having a ditch formed between said adjacent resin lenses; and
a transparent resin layer covering said plural resin lenses with substantially the same thickness and the ditch between said adjacent resin lenses,
wherein a micro lens array is formed which comprises a plurality of micro lenses arranged in a matrix, the micro lenses including the resin lenses and parts of the transparent resin layer which cover the resin lenses, respectively.
2. (original) The solid image-pickup device according to claim 1, wherein the minimum thickness of said transparent resin layer in the ditch between said adjacent resin lenses in the diagonal direction of said lens array is smaller than the minimum thickness of said transparent resin layer in the ditch between adjacent resin lenses in the arranging direction of said lens array.
3. (currently amended) The solid image-pickup device according to claim 1, wherein the gap in the arranging direction of said lens array between adjacent micro lenses each consisting of said resin lenses and said transparent resin layer covering the surface of said resin lenses falls within a range of between 0.005 μm and 0.3 μm .

4. (original) The solid image-pickup device according to claim 1, wherein the thickness of said transparent resin layer on the surface of said resin lens falls within a range of between 0.01 μm and 0.3 μm , and the depth of said ditch falls within a range of between 0.05 μm and 1.5 μm .

5. (original) The solid image-pickup device according to claim 1, wherein said undercoat layer is formed of a transparent resin having an etching rate higher than that of said resin lens.

6. (original) The solid image-pickup device according to claim 1, wherein the gap between adjacent resin lenses in the arranging direction of said lens array is not larger than 0.6 μm .

7. (currently amended) A solid image-pickup device, comprising:
a lens array formed by arranging a plurality of resin lenses in a manner to form a matrix;
an undercoat layer for fixing said ~~micro~~-lens array and having a ditch formed between adjacent ~~micro~~-lenses; and
a transparent resin layer covering said plural resin lenses and said ditch,
wherein a micro lens array is formed which comprises a plurality of micro lenses arranged in a matrix, the micro lenses including the resin lenses and parts of the transparent resin layer which cover the resin lenses, respectively,

wherein the difference between the height of the surface of said transparent layer in the ditch in the diagonal direction of said lens array and the height of the tops of micro lenses each consisting of said resin lens and said transparent resin layer covering the surface of said resin lens is larger than the difference between the height of the surface of said transparent layer in the ditch in ~~the~~an arranging direction of said lens array and the height of the top of the micro lens.

8. (original) The solid image-pickup device according to claim 7, wherein the gap between adjacent micro lenses in the arranging direction of said lens array falls within a range of between 0.005 μm and 0.3 μm .

9. (original) The solid image-pickup device according to claim 7, wherein the thickness of said transparent resin layer on the surface of said resin lens falls within a range of between 0.01 μm and 0.3 μm , and the depth of said ditch falls within a range of between 0.05 μm and 1.5 μm .

10. (original) The solid image-pickup device according to claim 7, wherein said undercoat layer is formed of a transparent resin having an etching rate higher than that of said resin lens.

11. (original) The solid image-pickup device according to claim 7, wherein the gap between adjacent resin lenses in the arranging direction of said lens array is not larger than 0.6 μm .

12. (currently amended) A method of manufacturing a solid image-pickup device, comprising ~~the steps of~~:

forming a photosensitive resin layer on an undercoat layer;

exposing said photosensitive resin layer to light in a predetermined pattern, followed by a developing treatment so as to form a resin pattern layer having a predetermined gap width;

subjecting said resin pattern layer to a heat flow so as to form a resin lens array which is 2-dimensionally arranged a plurality of resin lenses;

applying an etching treatment to those portions of said undercoat layer which are exposed in regions between adjacent resin lenses to form ditches; and

forming a transparent resin layer on the surfaces of said resin lenses and said undercoat layer.

13. (original) The method of manufacturing a solid image-pickup device according to claim 12, wherein said ditches are formed in a depth falling within a range of between 0.05 μm and 1.5 μm .

14. (original) The method of manufacturing a solid image-pickup device according to claim 12, wherein the gap width between adjacent resin lenses in the arranging direction of said resin lens array after formation of said ditches is not larger than 0.6 μm .

15. (original) The method of manufacturing a solid image-pickup device according to claim 12, wherein said transparent resin layer is formed on the surface of each of said resin lenses in a thickness falling within a range of between 0.01 μm and 0.3 μm .

16. (new) The method of manufacturing a solid image-pickup device according to claim 12, wherein said transparent resin layer is formed to cover the surfaces of said resin lenses such that portions of said transparent resin layer which cover the surfaces of said resin lenses have substantially a same thickness and cover a surface of said undercoat layer which includes the ditches.

17. (new) A solid image-pickup device, comprising:
a micro lens array formed by a plurality of resin micro lenses arranged in a matrix;
an undercoat layer to fix said micro lens array and having a ditch formed between adjacent said resin micro lenses; and
a transparent resin layer covering said plural resin micro lenses with substantially the same thickness and the ditch between said adjacent resin micro lenses.